REMARKS

Applicants have used the status identifier "Withdrawn-currently amended" to reflect amendments to withdrawn claim 21. Applicants note that 37 C.F.R. 1.121 and M.P.E.P. § 714 list "Original," "Currently amended," "Canceled," "Withdrawn," "Previously presented," "New," and "Not entered" as the status identifiers to be used to indicate the status of the claims and that subsection C(E) of M.P.E.P. § 714 lists "Withdrawn-currently amended" as an acceptable alternative for "Withdrawn."

The Office Action mailed March 14, 2007, has been received and reviewed. Claims 7, 14, and 20-24 are currently pending in the application. Claims 21 and 22 are withdrawn from consideration as being drawn to a non-elected invention. Claims 7, 14, 20, 23, and 24 stand rejected.

Applicants have amended each of claims 7, 14, and 21 to recite the transitional phrase "consisting of." Claims 7, 14, and 21 have also been amended to recite "at least one flame retardant" and "sulfur." Support for the amendments is found in the as-filed specification at least at paragraphs [0032], [0033] and [0039]. No new matter has been added.

Applicant respectfully requests reconsideration of the application as amended and in light of the arguments presented herein.

Restriction Requirement

The Examiner has withdrawn claims 21 and 22 as allegedly being drawn to a mutually exclusive species. Applicant respectfully traverses this action, as hereinafter set forth.

The general test as to when claims are properly restricted to different species is set forth in M.P.E.P. §806.04(f) as follows:

> Claims to different species are mutually exclusive if one claim recites limitations disclosed for a first species but not a second, while a second claim recites limitations disclosed only for the second species and not the first. This may also be expressed by saying that to require restriction between claims limited to species, the claims must not overlap in scope.

Applicant respectfully submits that withdrawn claims 21 and 22 should be considered by the Examiner because the claims do not recite limitations that are not in claims 7 and 14.

Specifically, claims 21 and 22 are directed to an insulation material, each element of which is recited in claims 7 and 14. Applicant has amended claims 21 and 22 to recite the patentable subject matter of claims 7 and 14 and, therefore, submits that these claims are allowable. Since claims 7 and 14 recite, *inter alia*, the insulation material, the subject matter of claims 21 and 22 not only overlaps in scope with that of claims 7 and 14, but is currently under consideration by the Examiner. As such, claims 21 and 22 should be rejoined with claims 7, 14, and 20.

35 U.S.C. § 112 Claim Rejections

Claims 7, 14, 20, 23, and 24 stand rejected under 35 U.S.C. § 112, first paragraph, as allegedly containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicant respectfully traverses this rejection, as hereinafter set forth.

With respect to the rejection of claims 7 and 14, each of the claims has been amended to replace the term "a curing agent" with the term "sulfur." Each of claims 7 and 14 has also been amended to delete the terms "silica" and "ammonium phosphate" and to replace these terms with the term "at least one flame retardant."

As such, claims 7 and 14 comply with the written description requirement of the first paragraph of 35 U.S.C. § 112.

Claim 20 is allowable, *inter alia*, as depending from an allowable base claim.

Regarding the rejection of claims 23 and 24, Applicant respectfully submits that the as-filed specification provides sufficient support for the term "carbon black." Tables 1 and 8 of the as-filed specification disclose that the insulating material includes N-330®. Referring to the Supplemental Information Disclosure Statement filed herewith, carbon black is the sole component of the compound sold under the trade name N-330®. Thus, one of ordinary skill in the art would understand that a composition containing N-330® contains carbon black.

As such, each of claims 23 and 24 complies with the written description requirement of the first paragraph of 35 U.S.C. § 112.

35 U.S.C. § 103(a) Obviousness Rejections

Obviousness Rejection Based on U.S. Patent No. 4,501,841 to Herring in view of U.S. Patent No. 4,726,987 to Trask *et al.* and U.S. Patent No. 5,952,089 to Namura *et al.*

Claims 7, 14, and 20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,501,841 to Herring ("Herring '841") in view of U.S. Patent No. 4,726,987 to Trask *et al.* ("Trask") and U.S. Patent No. 5,952,089 to Namura *et al.* ("Namura"). Applicant respectfully traverses this rejection, as hereinafter set forth.

M.P.E.P. 706.02(j) sets forth the standard for a Section 103(a) rejection:

> To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991). (Emphasis added).

The 35 U.S.C. § 103(a) obviousness rejections of claims 7, 14, and 20 are improper because the cited references do not teach or suggest each and every claim limitation and one of ordinary skill in the art would not be motivated to combine the teachings of the cited references in the manner asserted to produce the claimed invention.

Herring '841 describes an elastomeric lining material. Herring '841 at column 1, lines 11-14. The elastomeric lining material includes an elastomeric polymer, such as polychloroprene, chlorosulfonated polyethylene, polyurethane, and ethylene propylene diene monomer ("EPDM"). *Id.* at column 3, lines 22-28. The elastomeric lining material also includes char-forming organic fibers and inorganic particulates. *Id.* at column 2, lines 38-41 and column 3, lines 62-68. The char-forming organic fibers are polyaramide pulp fibers. *Id.* The inorganic particulates include hydrated silica, mica, or quartz. *Id.* To improve flame retardance, the elastomeric lining material also includes chlorinated organic compounds in combination with antimony oxide or hydrated alumina. *Id.* at column 4, lines 3-14.

Trask describes a fire retardant textile panel. Trask at the Abstract. The textile panel has five layers and includes a core material having a mixture of two or more staple fibers, such as polyamide fibers, polyimide fibers, poly(imideamide) fibers, aramide fibers, polyolefin fibers, polyester fibers, cellulosic fibers, sulfurs, glass fibers, carbon fibers, or polyether-ether ketone fibers. *Id.* at column 4, lines 48-53 and column 7, lines 6-12. The core material is sandwiched by four other layers, each of which includes a mixture of two or more of the above-mentioned staple fibers. *Id.* at column 4, line 66 through column 5, line 37. A skin, such as a polyvinylchloride ("PVC") material, is attached to a top surface of the five layers. *Id.* at column 5, lines 38-39.

Namura describes laminated foam sheets for a car interior. Namura at column 1, lines 12-14. The laminated foam sheets include a laminating film of a thermoplastic resin on at least one side of a foamed core layer. *Id.* at column 2, lines 41-45. The core layer is a modified polyphenylene ether resin formed from polyphenylene ether and polystyrene resin. *Id.*, column 2, lines 66-67. Namura teaches that impact modifiers, fillers, lubricants, anti-oxidants, antistatic agents, pigments, stabilizers and smell reducing agents can be added to the modified polypheylene ether resin core. *Id.*, column 7, line 64 to column 8, line 1. Namura also teaches a list of rubbers, including EPDM, and a list of inorganic flame retardants, such as ammonium polyphosphate, that may be added to the polypheylene ether resin core layer. *Id.*, column 8, lines 21-40; column 9, lines 29-47.

It is respectfully submitted that none of the cited references, either alone or in combination, teaches or suggests the limitation of "[an] insulation material consisting of a low-density ethylene propylene diene monomer polymer, at least one flame retardant, sulfur, an organic filler selected from the group consisting of polyvinyl chloride, polyphenylene sulfide, melamine, and a homopolymer of vinylidene chloride, and at least one additive selected from the group consisting of at least one antioxidant, at least one cure accelerator, at least one cure activator, at least one tackifier, and at least one plasticizer," as recited in each of claims 7 and 14.

Rather, the elastomeric lining material of Herring '841 includes EPDM, polyaramide pulp fibers, inorganic particulates, and chlorinated organic compounds in combination with antimony oxide or hydrated alumina. Applicants note that the transitional phrase "consisting of," as recited

in claims 7 and 14, excludes any elements or ingredients not specified in the claims. *See* M.P.E.P. § 2111.03. Since the elastomeric lining material of Herring '841 includes additional components, such as inorganic particulates and chlorinated organic compounds in combination with antimony oxide or hydrated alumina, Herring '841 does not teach or suggest a material that consists of the components recited in claims 7 and 14.

Moreover, as acknowledged by the Examiner, Herring '841 does not teach or suggest the organic fillers recited in claims 7 and 14. Thus, the Examiner relies on Trask as teaching "a variety of polymeric fibers for use in fire-retardant articles." *See* Office Action of March 14, 2007, p. 5. However, the polyvinylchloride material and polyphenylene sulfide fibers described in Trask are not part of an insulation material that consists of the components recited in claims 7 and 14. Instead, the polyphenylene sulfide fibers are fused into a textile panel and the polyvinylchloride material is used to form a skin on the top surface the textile panel. Because the teachings of Trask are limited to textile panels formed exclusively from fibers, Trask also does not teach or suggest an insulation material consisting of the components recited in claims 7 and 14. Namura teaches a polypheylene ether resin core to which EPDM and ammonium polyphosphate may optionally be added. As such, Applicants submit that Namura does not teach an insulation material that consists of the components recited in claims 7 and 14.

It is further submitted that, without the benefit of hindsight, one of ordinary skill in the art would not be motivated to combine the teachings of Herring '841, Trask and Namura in the manner asserted. The Examiner asserts that "given that polyphenylene sulfide and polyvinylchloride are advantageously used with or as substitutes for a char-former such as polyaramide fibers taught by Trask et al, it would have been obvious to one of ordinary skill in the art to utilize the polyphenylene sulfide or polyvinylchloride as a char-former in the rocket motor insulation of Herring '841." *See* Office Action of March 14, 2007, p. 6. However, nothing in Trask teaches that either polyphenylene sulfide fibers and/or polyvinylchloride material are used as char-forming fibers. Rather, Trask teaches that aramide fibers are char-formers, that fluoropolymers such as polyvinylchloride are resistant to temperature, chemicals, and combustion, and that polyphenylene sulfide is thermally stable and fire resistant. *See* Trask, column 3, lines 18-22 and column 2, lines 61-65. Furthermore, Trask teaches a skin

of polyvinylchloride material rather polyvinylchloride fibers. *Id.*, at the Abstract. Accordingly, one of ordinary skill would not find motivation or suggestion that polyphenylene sulfide fibers or polyvinylchloride material would be useful in forming the composition of Herring '841 based on the teachings of Trask.

The Examiner has further stated that, "[w]ith respect to organic fillers, Herring '841…does not exclude the substitution or the additional use of other similar materials." *Id.*, p. 5. However, Herring teaches "elastomeric insulating materials in which certain char forming organic fiber replaces asbestos." *See* Herring '841, column 1, lines 39-41. Accordingly, one of skill in the art would infer that the char forming organic fibers taught by Herring '841 were specifically selected to replace and replicate the properties of asbestos. Because neither the polyphenylene sulfide fibers nor the polyvinylchloride material of Trask are described as char forming fibers, substituting such material for char forming organic fibers in the elastomeric lining material would be contrary to the teachings of Herring '841.

Herring further teaches that "the elastomeric insulating materials, most importantly, contain intimately dispersed char forming organic fiber comprising polyaramide pulp." *See* Herring '841, column 2, lines 38-41. In contrast, Trask teaches a core material that is formed by blending and fusing two or more types of fibers into a structural textile panel. Applicant respectfully submits that one of ordinary skill in the art would have no motivation to believe that fibers that provide fire resistance when fused together in a solid, layered structural panel would have the same properties when dispersed in a composition.

Because the cited references do not teach or suggest all of the limitations of independent claims 1 and 14 and do not provide a suggestion or motivation to combine to produce the claimed invention, the obviousness rejection is improper and should be withdrawn.

Claim 20 is allowable, *inter alia*, as depending from an allowable base claim.

As such, withdrawal of the 35 U.S.C. § 103(a) obviousness rejections of claims 7, 14, and 20 is respectfully solicited, as is allowance of each of these claims.

Obviousness Rejection Based on Herring '841 in view of Trask, Namura, and U.S. Patent No. 4,878,431 to Herring

Claims 7, 14, and 20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Herring '841 in view of Trask, Namura, and U.S. Patent No. 4,878,431 to Herring ("Herring '431"). Applicant respectfully traverses this rejection, as hereinafter set forth.

The teachings of Herring '841, Trask and Namura are previously described.

Herring '431 teaches an elastomeric lining material. Herring '431 at column 1, lines 11-14. The elastomeric lining material includes an elastomeric polymer, such as polychloroprene, chlorosulfonated polyethylene, polyurethane, or EPDM, and polyisoprene. *Id.* at column 2, lines 36-44. The elastomeric lining material also includes char-forming organic fibers and organic or inorganic particulates. *Id.* at column 2, lines 27-35. The char-forming organic fibers are polyaramide pulp fibers. *Id.* The inorganic particulates include hydrated silica, mica, quartz, or chlorinated hydrocarbon compounds. *Id.* at column 4, lines 34-40. To improve flame retardance, the elastomeric lining material also includes chlorinated organic compounds in combination with antimony oxide or hydrated alumina. *Id.* at column 4, lines 41-46. The elastomeric lining material also includes tackifiers, lubricants, or plasticizers. *Id.* at column 5, lines 50-52.

The obviousness rejection of claims 7, 14, and 20 is improper because the cited references, alone or when combined, do not teach or suggest all of the limitations of these claims. Specifically, the cited references do not teach or suggest the limitation of "[an] insulation material consisting of a low-density ethylene propylene diene monomer polymer, at least one flame retardant, sulfur, an organic filler selected from the group consisting of polyvinyl chloride, polyphenylene sulfide, melamine, and a homopolymer of vinylidene chloride, and at least one additive selected from the group consisting of at least one antioxidant, at least one cure accelerator, at least one cure activator, at least one tackifier, and at least one plasticizer," as recited in each of amended claims 7 and 14. Herring '841, Trask and Namura do not teach or suggest this limitation for the reasons previously described. Herring '431 also does not teach or suggest this limitation and, therefore, does not cure the above-mentioned deficiencies of Herring '841, Trask and Namura. Specifically, Herring '431 describes a compound that includes, among other components, inorganic particulates such as hydrated silica, mica, quartz, or chlorinated

hydrocarbon compounds. Thus, Herring '431 does not teach or suggest an insulation material that consists of the components recited in claims 7 and 14. Moreover, Herring '431 does not teach or suggest an organic filler selected from the group consisting of polyvinyl chloride, polyphenylene sulfide, melamine, and a homopolymer of vinylidene chloride.

Since the cited references do not teach or suggest all of the limitations of claims 7 and 14, the obviousness rejection of these claims is improper and should be withdrawn.

Claim 20 is allowable, *inter alia*, as depending from allowable claim 14.

Obviousness Rejection Based on Herring '841 in view of Trask, Namura, and U.S. Patent No. 5,821,284 to Graham *et al.*

Claims 23 and 24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Herring '841 in view of Trask, Namura, and U.S. Patent No. 5,821,284 to Graham *et al.* ("Graham). Applicant respectfully traverses this rejection, as hereinafter set forth.

Claims 23 and 24 are allowable, *inter alia*, as depending from allowable claims 7 and 14, respectively.

ENTRY OF AMENDMENTS

The amendments to claims 7, 14, and 21 above should be entered by the Examiner because the amendments are supported by the as-filed specification and drawings and do not add any new matter to the application.

It is respectfully submitted that independent claim 7 and 14 are generic to all of the species of invention that were identified in the Election of Species Requirement in the above-referenced application. In view of the allowability of these claims, claims 21 and 22 which have been withdrawn from consideration, should be considered and allowed. M.P.E.P. § 806.04(d).

CONCLUSION

Claims 7, 14, and 20-24 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, she is respectfully invited to contact Applicant's undersigned attorney.

Respectfully submitted,

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